

**2022-2023**

**LAND  
RECLAMATION  
PROGRAM**

LRP

**BIENNIAL REPORT**



**MISSOURI**  
DEPARTMENT OF  
NATURAL RESOURCES

Missouri Geological Survey



Cover: Norris Cameron Quarry in DeKalb County.



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## Land Reclamation Program Missouri Geological Survey







## Introduction

Mining activity in Missouri began as early as the 1740s for mineral commodities such as lead, iron, limestone, sand and gravel. However, coal mining within the state began in the 1840s. With no legislation or regulation of these operations, as many as 67,000 acres were unreclaimed by coal-mining operations. An estimated 40,000 acres were abandoned from the mining of other commodities. Missouri was left with a legacy of acid-mine drainage, dangerous highwalls, toxic mine spoils, dangerous mine shaft openings, unvegetated and barren soils, soil erosion, and stream sedimentation.

The Missouri Department of Natural Resources' Land Reclamation Program was established in 1974 to regulate present mining operations and to reduce or eliminate the issues caused by coal mining operations prior to when laws regulating such operations were enacted. The Land Reclamation Program works to ensure that today's mining industry remains in compliance with Missouri Law, Chapter 444, RSMo, (Rights and Duties of Miners and Mine Owners). The law includes several chapters that are enforced by separate units within the Land Reclamation Program. The Industrial and Metallic Minerals Mining unit is responsible for the following sections: "The Metallic Minerals Waste Management Act," Sections 444.350-444.380, RSMo, and "The Land Reclamation Act," Sections 444.760-444.790, RSMo. The Projects and Inspection Unit and the Abandoned Mine Land and Permit Unit are responsible for "The Surface Coal Mining Law," Sections 444.800-444.970, RSMo.

State regulations further define these laws. Citizens can find these regulations in their entirety in the Missouri Code of State Regulations (CSR) Title 10 - Department of Natural Resources Division 40 - Missouri Mining Commission Chapters 1-10 for coal and industrial minerals. Metallic Minerals regulations are found in 10 CSR 45 - Metallic Minerals Waste Management Chapters 1-8.

The ultimate responsibility of the program is to ensure mine sites in Missouri are returned to a suitable land use and the adverse effects from active mining operations are minimized. When properly reclaimed, these areas can once again be used as farmland, wildlife areas, water impoundments, and development sites. Whenever possible, abandoned mines are reclaimed with wetlands, native prairie grasses, and trees that are part of Missouri's history.

Monthly inspections of each mine continue long after the last ton of coal is removed. Revisions to permits and reclamation changes may continue to be submitted for review and approval, as operators fine-tune their post-mining land use plans. Bond release requests may increase in number and in size of acres as more ground is reclaimed in accordance with each permit. In effect, reclamation inspection and permitting activities

consume a far larger percentage of time and effort than when active coal mining is taking place.

This biennial report provides information and statistical summaries concerning the activities and business accomplishments of the Land Reclamation Program and its efforts to reclaim mined land during the calendar years of 2022 and 2023.

## MISSOURI DEPARTMENT OF NATURAL RESOURCES

Guy Frazier, Staff Director  
Land Reclamation Program

## MISSOURI MINING COMMISSION Public Members

Gregory Haddock, Ph.D., Chairman  
Member since Jan. 22, 2004  
Associate Provost of Graduate Studies and Special Programs  
Northwest Missouri State University

Mike Larsen, RG, Vice Chairman  
Member since May 1, 2014

Chris Williams, Surface Mining  
Member since Feb. 23, 2023

Kevin James, Subsurface Mining  
Member since April 11, 2023  
One Vacancy, Public Member

## Current Statutory Members

David Thorne, Designee  
Member since Jan. 22, 2024  
Missouri Department of Conservation

Carey Bridges, State Geologist and Director  
Member since Nov. 15, 2022  
Missouri Geological Survey  
Missouri Department of Natural Resources

John Hoke, Director  
Member since April 10, 2023  
Clean Water Commission  
Missouri Department of Natural Resources

## Past Members for this Period

Leslie Gertsch, Ph.D.  
Public Member from Jan. 22, 2004, to Dec. 6, 2023  
Associate Professor of Geological Engineering  
Missouri University of Science & Technology

Aaron Jefferies, Designee  
Statutory Member from March 25, 2010, to Nov. 30, 2023  
Missouri Department of Conservation

Joe Gillman, State Geologist and Director  
Statutory Member from  
Sept. 30, 2008, to Sept. 30, 2022  
Missouri Geological Survey, Missouri Department of Natural Resources

Chris Wieberg, Director  
Statutory Member from Oct. 26, 2017, to Feb. 28, 2023  
Clean Water Commission, Missouri Department of Natural Resources

## Organization

The Land Reclamation Program was originally established in the Omnibus State Reorganization Act of 1974. This act created the Missouri Department of Natural Resources and placed the Land Reclamation Commission (created by Chapter 444, RSMo) under its auspices. The Land Reclamation Commission underwent a name change in 2014 to the Missouri Mining Commission, which has the responsibility of directing staff and operations of the program within the department's Missouri Geological Survey.

The eight-member commission includes three statutory members – the state geologist, the director of the Missouri Department of Conservation and the staff director of the Clean Water Commission. The governor,

with Senate approval, selects five public members. Of these five, three may be of the same political party. Two members of the commission may have a direct link with the mining industry with one member having surface mining experience and the other having subsurface mining experience.

The Land Reclamation Program consists of the Administrative, Abandoned Mines Lands, Coal, and Industrial and Metallic Mineral Mining units. A total of 18 full-time staff members are divided between the four units. Together, they are responsible for reclaiming abandoned mine lands and conducting inspections at all active mining operations in Missouri.

For more information, contact the department's Land Reclamation Program at 800-361-4827 or 573-751-4041.

## COAL MINING

### Introduction and Purpose

Through growing national concern over the environmental degradation caused by coal mining, Public Law 95-87 was passed in 1977 by the U.S. Congress. This law, also known as "The Surface Mining Control and Reclamation Act," dictated specific requirements for the reclamation of coal mined land, and established state regulatory authorities for the enforcement and monitoring of surface mine reclamation activities. The act also established programs and funding for reclaiming coal mine lands mined prior to May 2, 1977.

On May 3, 1978, the legislature amended Missouri's Strip Mine Law establishing Chapter 444.535, RSMo., commonly referred to as the Interim Program Law. Requirements of this law include:

- Topsoil must be removed and replaced to a minimum 6-inch depth.
- All prime farmland soils must be removed and replaced to 40-inch depth.
- All mined land must be reclaimed to an equal or better land-use capability.
- Mined land must be backfilled and graded to approximate original contour.
- Coal waste and other acid- or toxic-forming material must be covered with a minimum of 4 feet of non-toxic material.
- A permanent vegetative cover compatible with the pre-mining land use must be established.

On May 17, 1982, the Missouri legislature passed The Surface Coal Mining Law (Chapters 444.800 - 444.980, RSMo) to match federal standards established in the Surface Mining Control and Reclamation Act. The law



made changes to the permitting process and granted the Land Reclamation Commission the authority to administer the abandoned mine land program. Coal companies were now required to submit baseline information about the hydrology, geology, soils, fish and wildlife and cultural resources of the proposed mining area, along with a detailed description of the proposed operation and reclamation plan. The most significant change to the reclamation requirements was that prime farmland soils must be removed and replaced to a 48-inch depth. These requirements, known as the Permanent Program Law, continue in effect to date.

Missouri coal production declined from 4.2 million tons in 1987 to approximately 90 thousand tons by the end of fiscal year 2023. This decline is largely due to industry demands for low sulfur, western coal needed by power plants to reduce air pollution and meet emission standards required by the federal Clean Air Act. Most of Missouri's coal reserves contain relatively high sulfur content, ranging from 2-7% by weight. However, Missouri coal has a relatively high British Thermal Unit (BTU), compared to western coal. Some power plants and some cement kilns have opted to mix Missouri's coal with lower BTU western coal to increase energy production without exceeding sulfur emissions.

Land Reclamation Program staff closely monitor coal mining operations, including both coal removal and reclamation activities. Monthly inspections of each permit site are performed to ensure reclamation requirements are adhered to and continue until the reclamation liability release proving hydrologic balance of surface and groundwater, soil stability and vegetative production for a minimum of five years after final grading and seeding.



## Permitting

Staff members are responsible for reviewing permit revisions and new permit applications. Land Reclamation Program personnel are professionally trained in specific technical areas and are responsible for reviewing technical plans with respect to their area(s) of expertise. Technical areas that must be reviewed include engineering, blasting, soil science, geology, hydrology, revegetation, land use plans, fish and wildlife protection, cultural and historical resources and reclamation technology. Staff members review all coal permit applications for adequacy and recommend approval or denial to the Land Reclamation Program staff director. Staff also conduct regular evaluations of existing permits and provide technical assistance to the mining industry and the public.

A thorough review of surface coal mining permit applications, permit revisions and other permit-related actions are necessary to ensure all requirements of the law and regulations are met.

Reviewing permit processes includes determining all applications, as well as the review process itself meet all legal and administrative requirements. The permitting requirements for coal mining are extensive, requiring careful evaluation of diverse and comprehensive environmental topics such as soil characteristics, surface and subsurface water quality controls, fish and wildlife information, cultural resources and land use planning. Reviews also focus on specific details such as engineering designs for sedimentation ponds and water diversions, blasting plans and hydrogeologic data to determine the probable hydrologic consequences of mining. Other permitting responsibilities include evaluating each applicant's legal compliance history with past mining activities and ensuring all public review requirements are fulfilled. Staff members also coordinate with other regulatory agencies to ensure the company proposing to conduct the mining activity has obtained other necessary environmental clearances and permits.

During this period, one permit was issued for the Walnut Creek Mine located in Bates County covering 144 acres. By the end of 2023, there are eight active permits totaling 1,898.1 acres with \$12,833,383 in bonding being held by the program.

## Bond Releases

Reclamation begins immediately after coal is removed from a strip mine pit. Regulations dictate a pit must be completely backfilled and graded no later than 180 days after coal removal. Topsoil must then be redistributed within an additional 270 days. The area must then be seeded during the first available growing season, with specific vegetation sufficiently established to control erosion by the end of the second year. Sediment ponds, diversions, explosive storage areas and maintenance pads also are subject to reclamation requirements once they become inactive or are no longer needed as part of the

mining operation. Only when these requirements are met can an operator obtain a release of reclamation bonds.

In 2006, bonding requirements were changed for surface coal mines from a bond pool, with a flat bonding rate for all areas, to full cost bonding. Full cost bonding requires an engineering evaluation of the area to be mined to determine the worst-case scenario in terms of cost to reclaim should the company, for whatever reason, be unable to complete full reclamation. The bond amount is determined by the Land Reclamation Program and is then posted by the company before a permit to mine coal is approved and issued. The bond is held in escrow by the Land Reclamation Program until such time as reclamation is completed and approved by the staff director of the program. Bonds are released in phases as regulated reclamation milestones are met.

Reclamation liability releases during this period include Associated Electric Cooperative Inc. permit 1981-02,

releases Phase I 68.6, Phase II 64.0, and Phase III 29.2 acres; permit 1983-24 releases Phase I 58.5, Phase II 36.7, and Phase III 14.3 acres; and permit 1985-10 Phase I 10, Phase II 8.5, and Phase III 8.5 acres.





## Alternate Fuels Incorporated (AFI) Permits

As noted in the 2008-2009 report mentioned here for background information: In accordance with the legal consent agreement entered into with Continental Insurance and Beachner Construction, an over bonded amount of \$144,000.00 was released after the sureties mobilized for reclamation. The release was to the sureties for a portion of a permit associated with AFI. Shortly after the surety's mobilization, one of the landowners filed suit against Missouri for the reclamation plan that had been approved. Several months following the filing of the lawsuit, AFI received a multimillion-dollar court settlement from the State of Missouri for interfering in a business deal. The company filed bankruptcy as there are more financial claims against it than available funds. Since the company does have the financial resources to perform the reclamation, the sureties have suspended any further work until it is legally clear what reclamation plan will be followed and if the company will be required to complete the reclamation.

As noted in the 2010-2011 report, Christopher J. Redmond with Husch Blackwell LLP, was assigned as the bankruptcy trustee for AFI. A reclamation plan was approved for permit #1990-01 as prepared by TRIAD Environmental Services, and work began shortly afterwards. Permit revisions were approved by the Land Reclamation staff director for Permits 1991-02 and 1996-01. Two of the three landowners associated with permit 1991-02 appealed to the Administrative Hearing Commission as being adversely affected by this decision. Since reclamation is proceeding, AFI was moved from annual inspections to monthly inspections starting in June 2011.

As noted in the 2012-2013 report, the bankruptcy trustee has successfully completed the initial reclamation on permit #1990-01, and the Phase I reclamation liability release was approved by the staff director in July 2012, with a bond release of sureties for that permitted acreage released in December 2012. Reclamation work continues on permit #1996-01. The litigation by the landowners of two of the three properties on permit #1991-02 continues with only minimum reclamation activities

continuing where possible on property that is not part of the litigation.

As noted in the 2014-2015 report, all vegetative productivity requirements were met on permit #1990-01. Litigation on the land use change revision for permit #1991-02 ended with the judgment, by the Southern District Appellate Court, reversing the commission's approval of the revision. During this period, there has only been reclamation on properties that were not part of the litigation. The reclamation on permit #1996-01 was completed and vegetative productivity studies were started.

During the period of 2016-2017, permit 1996-01 did not successfully pass the prime farmland productivity. The bankruptcy trustee remained deadlocked, with two of three landowners not being able to complete reclamation on permit 1991-02 and did not proceed with any release application for 1990-01.

During the period of 2018-2019, the program received reclamation liability release applications for all three permits. Permit 1990-01 application requested a complete release of 303 acres, permit 1991-02 requested Phase I release of 107.1 acres and complete release of 7.5 acres, and permit 1996-01 requested Phase I release of 179.2 acres and complete release of 18.8 acres.

During the period of 2020-2021, on Jan. 20, 2020, AFI was approved for the following: permit 1990-01 complete release of all remaining 303 acres, permit 1991-02 Phase I release of 107.1 acres and complete release of 7.5 acres, and Permit 1996-01 Phase I release of 179.2 acres and complete release of 18.8 acres. On Oct. 4, 2021, AFI applied for Phase II/III release of 107.1 acres on permit 1991-02 and 6.3 acres on permit 1996-01. The release application was approved on Dec. 30, 2021. The remaining bonded acreage for AFI is permit 1991-02 for 330.4 acres of Phase I/II/III for a total of \$826,000, and permit 1996-01 for 172.9 acres of Phase II/III for a total of \$86,450.

During the period of 2022-2023, the Fowler and Leist property owners were sent certified mail asking for their input regarding reclamation on their property. The landowners did not identify any specific reclamation items they wanted addressed other than to comment the current reclamation did not meet the original reclamation plan. The landowners' attorney fee case was heard by the Missouri Supreme Court, which found the application for attorney fees was not submitted timely and therefore fees could not be awarded.

## Inspections

Reclamation activities are closely monitored to ensure the required performance standards are met and the reclamation plans approved in the company's mining permits are followed. Coal mine inspections are performed monthly. On-site inspections serve three primary functions:



Old Coal Mining Law reclaimed coal strip-mined land near College Mound, Macon County.



- Ensure an operation is functioning in a manner consistent with applicable state laws.
- Ensure an operation is fully complying with the conditions of the permit.
- Provide a public record on the status of mining and reclamation at a site.

Two styles of inspections are conducted, termed a complete and partial. Complete inspections are required once per calendar quarter. They involve a complete review of an operator's compliance with all permit conditions and state statutes. As the name implies, partial inspections are a review of an operator's compliance with some of the permit conditions and state statutes. Many aspects of a mining operation are evaluated during an inspection to ensure the following:

- Mining occurs within the confines of the permit.
- Topsoil is being salvaged and stockpiled.
- All stormwater runoff from mined areas enters sedimentation ponds.
- Pits and other areas of mine disturbance are promptly backfilled and graded.
- Topsoil is replaced to the required thickness.
- Vegetation is quickly re-established to control erosion.

Monthly inspections continue after an operation ceases mining coal. Continued monitoring ensures reclamation continues in an expedient manner and all conditions of the reclamation plan are followed. Only when an operator gains approval for a Phase II release (vegetation sufficient to control erosion) does the inspection frequency decrease from monthly to quarterly.

## Enforcement

Notices of violation may be issued when an operator is out of compliance with the conditions of the permit or with state regulations. These are only issued after efforts to correct noncompliance through the process of conference, conciliation, and persuasion prove ineffective. In general, if a notice of violation is issued, a monetary penalty also will be issued. Since inspections are conducted each month, it is rare that a serious noncompliance would exist. Well-trained inspectors can identify when a mining or reclamation process is getting off-track in time to rectify the situation with the company before the need to issue formal enforcement occurs.

## Industrial and Metallic Minerals

Industrial and Metallic Minerals Mining Unit noteworthy events for 2022 and 2023 are listed below.

Cessation orders are an elevated form of a notice of violation and are a more serious form of enforcement. The department will issue an order when a condition or practice at the mine site constitutes imminent danger to the health and safety of the public, or imminent environmental

harm to land, water, or air resources. Orders may require the immediate cessation of mining until the problem is corrected. Cessation orders, because of their seriousness, require immediate abatement by the operator. Failure to do so may lead to a revocation of the mining permit. Cessation orders also may be issued for a failure to abate a notice of violation within the required time frame.

If cessation orders are not abated in a timely manner through the appropriate action on the part of the mining company, the next level of enforcement action is a show-cause order. This means the operator is ordered to show why their permit should not be revoked and the reclamation bond forfeited. Show-cause orders may also be issued for other reasons such as for patterns of violations and uncorrected delinquent reclamation.

Two violations were issued during this period at the Walnut Creek Mine for exceedances of the peak particle limit.

## Bonding

Missouri's Surface Coal Mining Law (Chapters 444.800 - 444.970, RSMo) requires full cost bonding which requires the applicant to provide an estimate of the cost to reclaim a surface mine given the worst-case scenario of the mining operation. That estimate is reviewed by program engineers and, when verified, that dollar amount is the amount of bonding required to be posted prior to the issuance of any surface mining permit for coal.

## Bond Forfeiture Reclamation

Each permitted coal company in Missouri is required to provide financial assurances to ensure reclamation of the site after coal removal. Upon completion of reclamation to applicable standards, the coal company receives a release from the Land Reclamation Program. Should a coal company fail to provide reclamation to applicable standards, the bonds are forfeited to the Land Reclamation Program. These bonds are used by the program to provide reclamation to the site mined by the coal company.

There were no bond forfeitures during this period or remaining bond forfeiture sites.

## Off-Site Impacts

An off-site impact is defined as anything resulting from a surface coal mining operation or reclamation activity that causes a negative effect on resources, such as people, land, water, structures, etc. The program must regulate or control the mining or reclamation activity or result of the activity causing an off-site impact. In addition, the impact on the resource must be substantiated as being related to a mining and/or reclamation activity and must be outside the area authorized by the permit for conducting mining and reclamation activities.

There were two minor off-site impacts identified at the Walnut Creek Mine during this period as a result of two exceedances of the blasting regulatory limits.





Walnut Creek Mine, Hume, MO.





## Activities

Since the early 1840s, coal mining has at times been a major industry in the north-central and southwest portions of Missouri. As much as 6 million tons of coal was mined annually in the first three decades of the 20th century. Since mining companies gave little or no thought to the post-mining value of the land, some 67,000 acres of land were left abandoned prior to passage of Missouri's first strip mine legislation in 1971. Although nature has adequately reclaimed much of this land over the years, nearly 11,000 acres have been identified that require at least some amount of reclamation work to correct a wide range of public health, safety, and environmental problems. These problems include safety hazards such as steep and unstable highwalls and embankments, open mine shafts, abandoned mining equipment and facilities, dangerous impoundments, and unsanitary trash dumps. Acid mine drainage and sedimentation from exposed coal waste and mine spoils also pollute and clog streams. Subsidence caused when old underground mines collapse may damage overlying buildings.

Abandoned mine land reclamation took a giant step forward when the U.S. Congress enacted Public Law 95-87, the Surface Mining Control and Reclamation Act of 1977 (SMCRA). This act outlined specific requirements for reclamation of lands mined after Aug. 3, 1977, and established programs and funding for reclaiming abandoned mine lands. In January 1982, Missouri received approval from the federal Office of Surface Mining to operate the Abandoned Mine Land program and conduct reclamation work in the state.

## Reclamation Funding

The Abandoned Mine Land (AML) activities of the Land Reclamation Program are funded by the U.S. Department of Interior's Office of Surface Mining Reclamation and Enforcement AML Reclamation fund. All the money in the fund prior to the passage of Public Law 117-58 Infrastructure Investment and Jobs Act (IIJA) 11/15/2021 was collected from active coal mining companies through fees charged on the tonnage of coal mined since passage of Surface Mining Control and Reclamation Act. The Office of Surface Mining Reclamation and Enforcement distributes the fund to eligible states and American Indian tribes. To date, Missouri has received \$116.6 million in AML grants and cooperative agreements from the fund to conduct reclamation work in Missouri.

Due to steadily declining coal production since the late 1980s, Missouri and other Midwestern states have received decreasing allocations of funding. In 1987, the U.S. Congress established an annual minimum base funding level in the amount of \$2 million to allow states with significant abandoned coal mine problems, but limited coal production, to continue their AML programs. In 2006, the minimum base funding was incrementally increased over five years to the current amount of just under \$3 million per year, known to the AML Program as fee-based funding.

When the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), was enacted in November 2021, over \$11 billion in new funding was authorized to be appropriated for deposit into the Federal Abandoned Mine Reclamation Fund. Additionally, the law extended the abandoned mine land fee collections and mandatory grant distributions. The authority to collect the Title IV abandoned mine land reclamation fee now expires Sept. 30, 2034. The distribution amounts are based on the number of tons of coal historically produced in each state, or from the applicable Indian lands before Aug. 3, 1977. Using the formula, Missouri's anticipated annual grant amount from BIL-based funds is approximately \$5.8 million in addition to the traditional fee-based funds, subject to any required adjustments, for 15 years following the enactment of the law.

## Inventory and Ranking

Public Law 95-87 requires the highest priority abandoned coal mine sites be reclaimed before problems created by mining other commodities are addressed. The order in which abandoned mine land is reclaimed is initially determined by classifying the problem sites into three broad categories of priority. Priority I and II problem sites are reclaimed first since they pose a threat to the public health and safety. Priority III problem sites that adversely affect the environment may be addressed simultaneously if they are located adjacent or are contiguous to priority I and II problems. Consistent with the current Missouri's State Reclamation Plan, stand-alone priority III features will not be reclaimed until all priority I and II sites have been reclaimed. P.L. 95-87 also provides that, at the request of the governor, certain Priority I non-coal reclamation projects may be undertaken on a case-by-case basis before the priorities related to past coal mining have been fulfilled. The Land Reclamation Program has been closing extremely dangerous non-coal mine shafts under this provision since 2001. The information pertaining to Missouri's abandoned mine lands is updated as existing site conditions change or new sites are identified.

On an annual basis, the unfunded high priority (Priority I and II) problem sites are ranked and selected for future reclamation work according to the severity of existing problems. To date, an estimated \$204.8 million in Priority I, Priority II, and adjacent/contiguous Priority III AML problems have been inventoried in Missouri. Of this total, \$132 million remain unfunded.

## Missouri's Abandoned Mine Land Emergency Projects

The Land Reclamation Program is responsible for investigating all AML emergency concerns in Missouri and conducting reclamation work when emergencies are declared. An AML emergency is a sudden event related to past coal mining that has a high probability of causing substantial harm. There also must be a need to abate the emergency situation more quickly than would be possible



under normal AML program operations. Sometimes an emergency complaint constitutes an eligible coal mine problem, but the situation does not meet the emergency criteria. In this case, reclamation work could still be undertaken by the Land Reclamation Program; however, it would be subject to the project ranking and selection process and have to compete for available grant funds along with other priority I and II problem sites.

During calendar years 2022 and 2023, no emergency coal projects were completed.

## Abandoned Mine Land Featured Projects

### Franklin Reclamation Project

The AML unit completed the Franklin Abandoned Mine Land Reclamation Project on June 1, 2023. The 18-acre project reclaimed 877 linear feet of dangerous highwall located immediately adjacent to SW County Road 8508 in Bates County just northwest of Hume. Other reclamation activities included: treating a highly acidic pit (pH below 3.0) with hydrated lime in solution to raise the pH, constructing principal and emergency spillways on the existing good-quality strip pit, and revegetating the site with a diverse mix of cool season grasses and legumes. The project was awarded to Double S Dirt Works, Inc. of Liberal, Missouri. Final construction cost for reclamation was \$489,390.59.



Franklin Abandoned Mine Land Reclamation Project in Bates County.



## Hendrich Pit AML Reclamation Project

On Feb. 16, 2023, the Land Reclamation Program received a notice to proceed for construction on the Hendrich Pit Abandoned Mine Land Reclamation Project.

The project site is located southwest of Clinton in Henry County just west of the intersection of SW Highway T and SW 250 road. The reclamation project consisted of approximately 16 acres of abandoned mined lands.

Reclamation activities at the site eliminated the health and safety hazards associated with 516 linear feet of dangerous highwall, two hazardous water bodies, and 12 acres of spoil area. Other activities included: grading and re-contouring the areas of disturbance, revegetating the site with cool-season grasses and legumes to reduce erosion, and enhancing wildlife habitat in addition to pasture ground. Limestone rip rap was installed around all water control structures to guard against erosion. Ag-lime and fertilizer was incorporated into the disturbed areas final grade by ripping and disking to add organic matter and bring the soil pH to a hospitable level. After seed was drilled into the final grade, straw mulch was applied and crimped into the soil.

The project was awarded to Tri-Smith Construction LLC, located in Carrollton, Missouri. Construction activities were deemed complete June 13, 2023. Final construction contract amount was \$837,147.57.



Hendrich Pit Abandoned Mine Land Reclamation Project located southwest of Clinton in Henry County.





## South Chaney Reclamation Project

On Aug. 14, 2023, the Land Reclamation Program received a notice to proceed on the South Chaney Abandoned Mine Land Reclamation Project.

The project site was located southwest of Jerico Springs in Dade County along N Dade 21. The reclamation project consisted of approximately eight acres of abandoned mined lands.

Reclamation activities at the site eliminated the health and safety hazards associated with 300 linear feet of dangerous highwall, one hazardous water body, and six acres of spoil area. Other activities included: grading and re-contouring the areas of disturbance, revegetating

the site with cool-season grasses and legumes to reduce erosion, and to enhance wildlife habitat in addition to pasture ground. Limestone rip rap was installed in a rock flume at the end of a terrace construction to guard against erosion. Ag-lime was incorporated into the disturbed areas final grade by ripping and disking to bring the soil pH to a hospitable level. After seed was drilled into the final grade, straw mulch was applied and crimped into the soil.

The project was awarded to Double S Dirt Works, located in Liberal, Missouri. Construction activities were deemed complete Oct. 26, 2023. Final construction contract amount was \$237,825.20.



South Chaney Abandoned Mine Land Reclamation Project located southwest of Jerico Springs in Dade County along N Dade 21.





Although the Land Reclamation Program uses federal money designated to reclaim abandoned coal mines, only the traditional fee-based money may be used to reclaim non-coal vertical mineshaft openings if they meet certain criteria. These non-coal problems are allowed to be corrected with a request from the governor if it is necessary for the protection of the public health, safety, and general welfare from extreme danger, thereby meeting Priority I problem criteria.

Between Jan. 1, 2022, and Dec. 31, 2023, six (6) dangerous non-coal shafts were closed in the Joplin/Tri-State mining district and one (1) shaft was reclaimed in Franklin County. Two notable projects known as the Belew Shaft Project and Arcadia Lane Shafts Project were lead/zinc mine openings that were completed. Reclamation of these shafts generally include excavating to bedrock and installing a reinforced concrete plug over the opening, backfilling with on-site material, backfilling with quarry rock, using polyurethane foam if remote or possibly a combination of all methods. The location, size, severity, and risk to public health may warrant different closure methods. The closure methods that are quick and relatively inexpensive may not always be the best choice. Most often a more costly, yet more permanent closure method is preferred. This more permanent closure consists of excavating the loose soil material around the hole down to bedrock, exposing at minimum a 2-foot ledge of solid rock on all sides, constructing a platform, pouring a wedge-shaped steel-reinforced concrete plug at the top of the shaft, and backfilling over the concrete with earthen material. A closure of this type typically ranges from approximately \$15,000 to \$30,000 per shaft but can vary based upon the specific conditions of each shaft.

Currently, there are seven (7) non-coal shafts in the inventory listed as Priority 1 that will be addressed in the future. It is suspected there are many more open shafts our program is unaware of that will need to be closed. Dangerous mine shafts will continue to pose a threat to the public (especially in the Tri-State lead/zinc mining district in the Joplin area) and will be investigated and closed as the AML Program are made aware of them.

## Arcadia Lane Shafts Reclamation Project

The AML unit completed the Arcadia Lane Shafts Abandoned Mine Lands Reclamation Project on Jan. 6, 2022. The project entailed reclaiming three (3) P1 lead/zinc vertical openings located in near the city of Joplin in Newton County. Two vertical shafts were similar in dimensions measuring 10 feet by 10 feet opening with a depth of 20 feet. The other vertical opening dimensions had a depth of 10-15 feet with a 40-foot opening on the surface. Double S Dirt Works Inc. was contracted to abate the safety hazards at the site. Scope of work for the project entailed filling the more linear feature with 168.09 tons of quarry shot rock and on-site fill. The other two vertical openings were reclaimed by excavating to bedrock and then installing a reinforced concrete plug in each, backfilling above the plug, and seeding and mulching final grade. A total of 100 cubic yards of concrete was installed in the two openings to form the plugs. Total cost of reclamation for this project was \$52,750.



Arcadia Lane Shafts Abandoned Mine Lands Reclamation Project.



## Belew Shaft Reclamation Project

On Sept. 2, 2022, the Land Reclamation Program completed a Priority 1 non-coal shaft project named Belew Shaft. The project site was located northwest of Lonedell in Franklin County.

Reclamation activities at the site eliminated the health and safety hazards associated with one (1) lead/zinc vertical opening or shaft. Authorization to proceed was granted by the Office of Surface Mining due to the proximity to occupied structures (less than 300 feet) and the danger to the public. The location of the subsidence corresponded directly with historical mine shaft locations found in Franklin County mine maps. The feature was approximately

20 feet in diameter at the surface with an unknown total depth due to some trash at the opening. Original shaft documents stated depth of production during mining was approximately 240 feet below the surface.

Matt Girardier Excavating was awarded the under \$50,000 contract to reclaim the Priority 1 feature. Scope of work was to excavate then haul off trash at the opening, excavate soil to bedrock, pour a reinforced concrete plug and then backfill with off-site material. A rebar cage was placed in the opening followed by 54 cubic yards of concrete. Once the concrete had cured, 421 tons of clean fill was installed over the concrete plug, and lastly 18.18 tons of topsoil was brought to the site and graded to drain. The total cost of reclamation was \$49,197.53.



Belew Shaft project in Franklin County.





## INDUSTRIAL MINERALS

### Legislative and Rule Changes

During the 2023 legislative session, two sections of The Land Reclamation Act were revised to reflect new sunset dates to industrial minerals fee process and the industrial minerals fees. Under Senate Bill 109, Section 444.768.1, RSMo was revised to read: "The authority for the commission to further revise the fee, bond, or assessment structure as provided in this subsection shall expire on August 28, 2030."

Also under Senate Bill 109, Section 444.772.12, RSMo was revised to read: "Fees imposed pursuant to this section shall become effective August 28, 2007, and shall expire on December 31, 2030. No other provisions of this section shall expire."

### Public Participation

When applying for a new site, transferring an existing site, or applying for an expansion or revision, an operator is required to send a notice of intent to operate a surface mine. The operator is required to send the notice by certified mail to all first-tier landowners, not related to the company within one-half mile of the mine plan boundary and to the governing body of the counties or cities where the proposed mine area is located.

The operator also is required to publish a public notice of intent in a newspaper that is qualified to run public notices and has general circulation in the county where the proposed mine is located. The public notice must be printed once a week for four consecutive weeks.



One Source Services Rock Crest Project public meeting, Camden County.

The public notice requirement also allows the public an opportunity to provide comments or request a public meeting. The public comment period lasts for about 45 days. Operators are required to hold a public meeting if one is requested. Operators have found success in holding their own version of a public meeting, or "open house" neighborhood gatherings, to discuss mine plans when proposing a new site.

Attendance figures at public meetings range from one individual to a crowd of more than 100 people. Most of the public meetings resolve the concerns expressed by the public, thus eliminating most requests for hearings before the Administrative Hearing Commission. Public meetings provide a forum for the public to better understand or resolve issues related to a proposed mine site. They also provide a starting point for a company to reveal the proposed mine plan and provide responses to the public's concerns. Some of the topics covered at the public meetings involve impacts to air quality, water quality, permitting issues, blasting, and livelihood issues. The communication at the meetings allows everyone the opportunity to share and understand the potential impacts a proposed surface mine may present.

Following a public meeting, the Land Reclamation Act at Section 444.773.1, RSMo., requires the staff director to make a decision regarding the issuance or denial of an applicant's permit. The staff director's decision can be appealed to the Administrative Hearing Commission. If a hearing is held, the Administrative Hearing Commission would then make a recommendation to the Missouri Mining Commission. The decision of the Missouri Mining Commission is the final administrative appeal, which could then be appealed to the proper court of appeals.

Requests for hearings require a tremendous amount of staff time along with resources to address, and will become increasingly common as mining companies look to open sites near heavily populated areas.

Since the enactment of law (444.773 RSMo.), from Aug. 28, 2014, to Dec. 31, 2023, 103 public meetings have been held and 11 hearings requested through the Administrative Hearing Commission. The six hearings held in 2022 and 2023 are reported earlier in this document.

The industrial minerals permitting program continues to look for ways to improve its methods of helping the public to understand the industrial minerals permitting procedures. During the 2022 and 2023 calendar year, citizens living near proposed mines requested 29 public meetings about proposed mine sites. This biennial reporting period experienced about a 30% increase for the number of public meetings compared to the previous two years.

New sites and expansions to existing sites are needed to provide building commodities that meet the needs and demands of ongoing and new construction. It is likely that sometime in the future, changes may need to be implemented to associated statutes, rules, or internal policies for the Land Reclamation Program to better respond to the needs of the environment, the community, and companies that mine industrial minerals. One change made to the permitting process in 2020 is that certified mail letters now contain an additional statement that you can request a map of the proposed permit area by contacting the Missouri Department of Natural Resources, Land Reclamation Program.



Routinely, the concerns brought to public meetings involve issues outside the regulatory authority provided in The Land Reclamation Act. These issues include concerns about blasting, safety on public roads, and the mine's effect on property values. The public meeting process has brought an acute awareness to the department about what is most troubling to the citizens. In return, the public has an opportunity to learn more about the reclamation requirements under The Land Reclamation Act. Continued contact will help pave the way for the citizens to resolve their concerns about mining.

## Permitting

Industrial mineral mining permit certificates are issued for a one-year period. The industrial mineral permits must be continually renewed until the Missouri Mining Commission or staff director deems all mined land covered by the permit has been fully reclaimed. Approximately 700 permit applications were issued in the past two years. Since some permits contain multiple sites, the number of permitted sites is substantially higher. In addition to the new and renewed permits, staff spent a considerable amount of time reviewing other permit actions, including permit transfers, expansions, amendments, and consultations with the Missouri Department of Conservation. Fees collected from industrial mineral permits are used to conduct necessary regulatory functions.

A tremendous amount of time was spent in 2017 developing what is called the Land Reclamation Information System. This system allows an operator to electronically submit an application along with an electronic payment. The Land Reclamation Information System (LRIS) went live Oct. 1, 2018. LRIS was developed to help the mining community apply for and receive Missouri Mining Industrial Mineral Permits.

LRIS can be used to apply for a new permit; renewal, amendment, expansion, and revision permits; and bond release requests for existing industrial mineral permits. In later phases, LRIS may be expanded to include transfer requests for industrial mineral permits and provide ability to submit annual reclamation status reports. Additionally, metallic minerals and coal permit information may be added to LRIS with permitting ability to be determined. Metric data as of Jan. 3, 2024, indicates that nearly 44% (115 companies) of all the permitted companies are using LRIS representing more than 65% (465 sites) of all the industrial mineral permitted sites.

Learn more about LRIS online at [dnr.mo.gov/land-geology/businesses-landowners-permittees/permits/industrial-mineral/land-reclamation-information-system-lris](https://dnr.mo.gov/land-geology/businesses-landowners-permittees/permits/industrial-mineral/land-reclamation-information-system-lris)

## Inspections

Inspectors are limited to the amount of on-site inspections they can perform in a given year, as they also conduct permitting and other actions. Mine operations range in size from one-acre gravel bars to some sites being greater than 1,200 acres permitted. In 2022, there were 728 permitted industrial mineral sites, and 265 inspections were conducted. In 2023, there were 738 permitted mine sites, and 336 inspections conducted. Inspection staff attained a compliance rate of almost 100% when working with the operator through conference, conciliation, and persuasion. Inspection numbers are trending upward. These total numbers are consistent in average when compared to the number of inspections conducted during the past few years. This similar rate of inspection numbers are related to:

- Longer employee retention time.
- Increased efficiency for producing inspection reports.
- Having no vacancies and all staff being certified to conduct inspections.

The Industrial Minerals Unit projects to maintain a total of 350 inspections per year in years to come, as long as the unit retains inspection staff and certified inspectors to conduct investigations. There is a goal for the three and a half inspectors to conduct about 70 inspections each per year. Conducting inspections at this rate will mean sites are inspected once every two years. This is a huge improvement when compared to the last 15 years.

## Types of Inspections

In 2022 and 2023, an average of 315 site inspections were conducted. Inspections typically fit into three categories:

- Regular Inspections.
- Citizen Concern Inspections.
- Bond Release and Other Inspections.



Bailey Quarries, Fall Valley.



## Regular Inspections

Regular Open Pit inspections are conducted to determine if an operator is in compliance with the approved permit and the applicable performance requirements. Performance requirements checked by inspectors include timeliness of reclamation, safety barriers, lateral support, erosion and siltation control, grading, topsoil handling, and revegetation. Inspectors also evaluate each mine site to ensure all mining disturbance is confined to the permitted and bonded area, and the approved post-mining land uses are being established.

In-stream sand and gravel inspections now involve performance standards. Inspectors evaluate the mined area on the gravel bar to ensure the material being excavated is unconsolidated. Inspectors also look to ensure there is no mining below the waterline, no relocation of stream channels, no sorting or washing of gravel on the gravel bar, and an undisturbed buffer of 10 feet exists from the flowing water.

## Citizen Concern Inspections

Concern inspections are conducted after the program receives notification that an industrial mineral operation may be in violation of The Land Reclamation Act. Concerns filed may involve blasting, noise, truck traffic, water pollution, digging in flowing water, pumping turbid water from a pit, erosion, or siltation. Following an investigation, the inspector and operator often are successful in



Complaint in Camden County, 2023.

## Bond Release and Other Inspections

Bond and reclamation responsibility release is an important part of the mine closure process. Bond release inspections are conducted at the operator's request when reclamation has been completed. The mining company also will send the landowner a letter announcing the intent to seek a release of the mined land. The landowner may request a hearing before the Missouri Mining Commission if they feel the land is not properly reclaimed. The operator may likewise request a hearing if the bond release application is denied.

The focus of the bond release inspection is to determine if the mine site has been reclaimed in accordance with the reclamation plan. The inspector must evaluate if the operator has established the designated post mining land uses. Post mining land uses may be designated as wildlife habitat, agricultural, development, or water impoundment. At least two growing seasons must pass after an area has been planted before the success of revegetation can be judged. Land never affected by mining that is under permit and bond may be released as unaffected.

The staff director determines if the bond, or any portion thereof, should be released. When mined land is properly reclaimed, a request for approval for bond release is made to the Missouri Mining Commission or staff director. If either the Missouri Mining Commission or staff director approves the request for approval of reclaimed land, the reclamation performance bond is released back to the operator.

The commission or staff director approved the release of 337 acres of reclaimed mine land in 2022 and 420 acres in 2023.

To obtain a "Request for Approval of Reclaimed Land" form, visit the department's website at [dnr.mo.gov/document-search/request-approval-reclaimed-land-mo-780-0946](https://dnr.mo.gov/document-search/request-approval-reclaimed-land-mo-780-0946) or contact the Land Reclamation Program by telephone at 573-751-4041.



Mining without a permit is discovered with detonated material.

resolving a citizen's complaint in a timely manner. However, many concerns related to mining operations, such as blasting and noise, are not regulated by the Land Reclamation Program and are referred to the appropriate regulatory authority. Nonetheless, the department requires a concern be investigated within 30 days. The goal is to respond within 14 days of receiving a concern, with an investigation usually is conducted within seven workdays. There were 14 concerns filed and investigated in 2022, and 16 concerns filed and investigated in 2023.

The department and programs also are conducting environmental assistance visits for new operators. Typically, the Land Reclamation Program allows an operator to conduct operations for a few months before conducting an initial inspection to see what changes the operator may need to make to stay in compliance with applicable mining laws. Assistance visits are another type of inspection. If an operator requests an inspection to understand how to mine in accordance with mining laws, an inspector will provide that type of assistance inspection. Since 2007, staff annually inspect every site that is within the watershed of Outstanding State Resource Waters or Outstanding National Resource Waters.



Harbison Walker International Bond Release.

## Enforcement

Enforcement powers of the Missouri Mining Commission were enhanced in two significant ways by revisions made in 1990 to The Land Reclamation Act. The commission may impose administrative penalties when notices of violation are issued, and they have the option to refer civil actions to the Cole County Court rather than the county in which the violation occurred. These revisions have resulted in more prompt and vigorous action by the operators to eliminate violations. Often, violations observed during an inspection are eliminated through the use of conference, conciliation, and persuasion.

This process encourages the operator to correct noncompliance through voluntary action and is used normally in cases of relatively minor noncompliance. If attempts to correct a violation through conference, conciliation, and persuasion are not successful, a notice of violation is issued to the operator.

Three notices of violation were issued during 2022 and 2023. All of the violations were administrative in nature. The administrative violations involved failure to pay an administrative penalty, obtain a permit, or to have a mine plan signed by the landowner. An increase in the number of site inspections at industrial minerals operations typically carries the potential for an increase

in enforcement activity during a specific time frame. Since the Land Reclamation Program started conducting environmental assistance visits, the department has noticed mining operators are now more informed about the law and regulations and less likely to be in a violation situation. Potential enforcement actions are avoided or minimized through close coordination with Land Reclamation Program staff.

## Hearings

During 2022 and 2023, five Industrial Minerals permit application appeals were received by the Administrative Hearing Commission.

### Twin States Sand & Gravel LLC

On Sept. 21, 2021, Twin States Sand & Gravel LLC submitted to the Land Reclamation Program a new permit application for a proposed 22-acre limestone mine in Sullivan County, named the Reger Quarry. This is the same location where Twin States Sand & Gravel applied for a permit to mine limestone in 2020. Twin States Sand & Gravel held a public meeting on Nov. 16, 2021, in Milan. Thirty-seven people signed in at the public meeting. This mine site borders three sides of the national historic Henry Cemetery.

The Land Reclamation Program issued a permit on Dec. 22, 2021. On Jan. 18, 2022, a petitioner filed a complaint with the Administrative Hearing Commission, pursuant to Section 444.773.2, RSMo, appealing the department's decision to issue Permit No. 1203 to Twin States Sand and Gravel, LLC for the surface mining of limestone in Sullivan County. On Feb. 10, 2022, Twin States Sand & Gravel filed a motion to intervene, and that motion was granted on Feb. 14, 2022. The hearing was scheduled for April 29, 2022.

On April 28, 2022, lawyers for the parties agreed to continue the case for approximately 30 days. On May 2, 2022, Twin States provided a request for approval of reclaimed land to the Land Reclamation Program. On May 18, 2022, the Land Reclamation Program released the bonded area from Permit 1203 since the land was not affected by surface mining, resulting in termination of the permit and causing the appeal to be moot. On June 27, 2022, the Administrative Hearing Commission ordered the case to be dismissed upon the parties' joint filing of dismissal.

### Nexgen Silica, LLC

On March 4, 2022, Nexgen Silica, LLC, (hereafter Nexgen) submitted to the Land Reclamation Program an application for a new permit to mine sandstone in Ste. Genevieve County, known as the Highway 32 Pit, for a proposed 249 acres. Nexgen held a public meeting on May 19, 2022, in Ste. Genevieve. One hundred sixty-four people signed in at the public meeting, with close to 350





people in attendance. Concerns about the permit application involved the location near Hawn State Park, air and water pollution, blasting, road conditions, traffic, and other concerns. The permit was issued on June 30, 2022.

On July 20, 2022, Operation Sand filed a complaint to the Administrative Hearing Commission appealing the department's decision to issue the permit. On July 28, 2022, Nexgen filed a motion to intervene, which was granted. A hearing was held on Sept. 27, 2022. On Nov. 15, 2022, the Administrative Hearing Commission issued the following recommended decision: "We recommend that the Missouri Mining Commission reverse its decision to issue a permit to Nexgen Silica, LLC, because it was issued unlawfully in that Nexgen did not comply to list all known property owners on its application and to list a source granting it a legal right to mine the area in its mine plan."

On Jan. 5, 2023, the Missouri Mining Commission met to hear arguments presented by the parties and then vote on a final administrative action involving the permit. On Jan. 17, 2023, the Administrative Hearing Commission's recommended decision was modified by the Missouri Mining Commission. The modified final decision reads: "The issuance of the permit is denied because the applicant did not list all persons with any interest in the land."

On Feb. 16, 2023, Nexgen, along with Operation Sand, appealed the Missouri Mining Commission final decision to the Missouri Eastern District Court of Appeals. The reason for the Nexgen appeal was to seek review of the Missouri Mining Commission decision to reverse issuance of the permit. Operation Sand cross-appealed to seek review of the Missouri Mining Commission's rejection on other grounds of the source of Nexgen's legal right to mine the land and the department's alleged failure to investigate Nexgen's application. On Sept. 6, 2023, oral arguments were heard by the Division 3 Judges of the Eastern District Court of Appeals. On Oct. 17, 2023, the Missouri Court of Appeals issued the following mandate, in conclusion:

"Nexgen's permit application did not identify all parties with any interest in the land and did not contain the written consent of all parties prior to approval of the mining permit by DNR. In addition, the Mining Commission has no statutory authority to allow Nexgen to amend an incomplete application during an appeal after DNR has issued a permit. We affirm the decision of the Missouri Mining Commission to deny Nexgen's permit application.

Operations Sand prevailed in obtaining denial of Nexgen's mining permit issued by DNR, which is the relief it requested in every count of its first amended complaint. Operation Sand is not aggrieved by the Mining Commission's decision, which denied Nexgen a mining permit although it declined to deny the permit on all

of the bases urged by Operation Sand. Because Operation Sand received the relief it requested - denial of Nexgen's mining permit - we dismiss Operation Sand's cross appeal."

## Twin States Sand & Gravel LLC

On Oct. 11, 2022, Twin States Sand & Gravel LLC submitted to the Land Reclamation Program a permit application for a proposed 22-acre limestone mine in Sullivan County, the Reger Quarry. This is the third application attempt for Twin States to obtain a mining permit for this site. A public meeting was held on July 13, 2023. There was an estimated 45-people in attendance. This mine site borders three sides of the national historic Henry Cemetery.

The Land Reclamation Program issued a permit on Aug. 24, 2023. On Sept. 22, 2023, two petitioners filed a complaint with the Administrative Hearing Commission, appealing the department's decision to issue Permit No. 1218 to Twin States Sand & Gravel LLC for the surface mining of limestone in Sullivan County. Twin States Sand & Gravel filed a motion to intervene, and that motion was granted on Oct. 19, 2023. A hearing was set for Dec. 6, 2023, and then a request for continuance was agreed by all parties involved.

Twin States Sand & Gravel requested the permit be rescinded on Jan. 22, 2024. On Jan. 22, 2024, the Land Reclamation Program rescinded Permit 1218 issued to Twin States Sand & Gravel LLC. The Administrative Hearing Commission dismissed the case effective January 23, 2024.

## One Source Services LLC

On Jan. 24, 2023, One Source Services LLC, submitted to the Land Reclamation Program an application for a new site to an existing permit to mine limestone on 25-acre site known as Rock Crest Project, on the shoreline at Lake of the Ozarks, located in Camden County. A public meeting was held on April 25, 2023. Approximately 55 people attended. There were many concerns about this proposed mine site including dust, noise, property devaluation, the site being disguised as a development project and other concerns.

This site was also the subject of a county temporary restraining order and special meeting of the Missouri Mining Commission. During the Missouri Mining Commission's special meeting on April 10, 2023, it voted unanimously in support of the referral of this matter to the attorney general's office for injunctive relief due to operating without a permit.

The permit was issued on June 1, 2023. On July 5 and 7, 2023, the Administrative Hearing Commission received 25 complaints from neighboring landowners appealing the issuance of the permit. All of the complaints were consolidated into one case. A hearing was held on Sept. 26, 2023. During the hearings evidence was presented about One Source Services conducting mining operations without a permit.





On Oct. 27, 2023, the Administrative Hearing Commission issued a recommended decision to the Missouri Mining Commission: "Based on One Source's flagrant pattern of noncompliance, we recommend that the Missouri Mining Commission revoke Permit No. 1237-A#1." On Dec. 6, 2023, the Missouri Mining Commission met and unanimously voted to accept the Administrative Hearing Commission's recommended decision. Therefore, the One Source Services LLC, Rock Crest Project permit is revoked.

### **Mid-States Materials, LLC**

On May 10, 2023, Mid-States Materials LLC submitted to the Land Reclamation Program an application to add a new site to an existing permit to mine limestone on 298 acres at a site known as Bates City Quarry, located in Lafayette County. A public meeting was held on July 19, 2023. There is record of 36 people attending. Concerns about this proposed mine site included dust, noise, property devaluation, and narrow public roadways. This site also surrounds 20 acres of The Osage Nation tribal burial grounds. The Osage Nation requested an archaeological survey of the property as there is suspected unmarked burials on the property.

The new site to an existing permit was issued on Aug. 16, 2023, to Mid-States. On Sept. 15, 2023, the Administrative Hearing Commission received three complaints from neighboring landowners and The Osage Nation appealing the issuance of the permit. A stay hearing was also requested and held on Oct. 12, 2023. A stay on permit 1236-A2 was granted pending the findings and determination on the outcome of the hearing. A hearing was held on Nov. 29, 2023. During the hearing, evidence was presented about the following: The possibility of additional unmarked burials on the property, property devaluation, doubling the amount of blasting that would occur with two quarries in the area, additional heavy trucks and commercial vehicles on a narrow public roadway, along with other claims. On Jan. 5, 2024, the Administrative Hearing Commission issued a recommended decision to rescind the permit because the application failed to identify all persons with an interest in the land to be mined. The details involved a husband being identified in the mine plan as a landowner; however, there was also a lease agreement discovered during the production of documents, and the wife of the landowner was identified on the lease, but not in the permit application material. However, the Administrative Hearing Commission also issued an alternate recommended decision to issue the permit without conditions. On Feb. 22, 2024, the Missouri Mining Commission met and had detailed discussion about this case as well as listening to different parties who presented their case. After discussion, the Missouri Mining Commission made the final administrative decision to accept the alternate recommendation of the Administrative Hearing Commission to issue the permit without conditions.

## **Bonding**

Open-pit sand and gravel operations mining 5,000 tons or less per year are bonded at a rate of \$500 per acre before a permit is issued. For all other operations, the minimum bond required on eight-acres or less is \$8,000 and \$500 for every acre permitted thereafter. The rules allow for a \$4,500 per acre topsoil bond when there is a failure to salvage topsoil for those acres. Typically, in-stream sites are not subject to bonding requirements due to the lack of reclamation responsibility. However, upon inspection, if an in-stream site is determined to have created a reclamation responsibility, bonding requirements of \$500 per acre will be imposed.

The state will use the bond to complete reclamation if the permittee, for whatever reason, is unable or unwilling to fulfill the legal obligation to reclaim the disturbance to the land surface they caused. An operator may secure bond through a surety bond, certificate of deposit, or an irrevocable letter of credit. All bonds must be submitted on forms provided by the Land Reclamation Program.

If an operator elects to use a certificate of deposit to secure bond, the certificate of deposit must be accompanied by a "Personal Bond Secured by a Certificate of Deposit" form. The certificate of deposit must also be assigned to the State of Missouri and the issuing bank must acknowledge this action using an Assignment of Certificate of Deposit. The assignment must be irrevocable and conditioned on the release of the bond by the Missouri Mining Commission. The interest earned on a certificate of deposit must be made payable to the depositor.

Applicants who wish to increase the number of acres under permit must post additional bond. A surety bond may be increased through a rider with an attached power of attorney. Bonds may be replaced, dollar for dollar, at any time. The old bond cannot be returned until the replacement bond has been submitted and accepted by the Land Reclamation Program staff director.

At the end of 2023, there is record of 757 acres being released in the 2022 and 2023 reporting period and approximately \$20,667,000.00 in financial assurance held by the State of Missouri.

## **Bond Forfeiture**

If an individual or company fails to perform the required reclamation, the bonds would then be forfeited and the state would complete the reclamation. An operator who forfeits the bond may not be issued another permit to engage in surface mining from the Missouri Mining Commission in accordance with Section 444.778.2, RSMo.

Between 1972 and 1990, 26 sites operated by 14 different companies became bond forfeiture sites, and proper reclamation became the responsibility of the Land Reclamation Program.

In 2003, National Refractories left reclamation responsibilities to the state when they went bankrupt. Due to ne-



Summit Proppants forfeited site.



Reclamation of the forfeited Mid-America site after the landowner finished reclamation.



negotiations with the surety company, a settlement was not reached until October 2006. The surety provided \$85,250 in bond monies to reclaim 25 clay pits for a total of 162.5 acres. After an initial inspection, the Land Reclamation Program quickly learned there was not enough bond money to properly reclaim the sites in accordance with The Land Reclamation Act. Two sites in particular have a cost estimate of \$200,000 for proper reclamation. The program continues to work with landowners to reclaim these sites. No mining companies left a reclamation responsibility to the state in 2006 or 2007. In 2008 and 2009, a total of 93 acres were forfeited involving two limestone and two sand and gravel mining operations. In 2010 and 2011, no bonds were forfeited. In 2012 and 2013, two clay mine sites for a total of 43 acres were forfeited along with an 8-acre limestone site. In 2014 and 2015, forfeiture of Lincoln County's White Rock Quarry took place, consisting of 41 bonded acres. In 2016, 2017, 2018 and 2019 no bonds were forfeited. There were no bond forfeitures in 2020. In 2021, two sand mining companies, Legacy Quartz Sand Company, LLC and Summit Proppants, Inc., left a reclamation responsibility of 48 acres for the state to reclaim.

In 2022 and 2023, no bonds were forfeited.

Reclamation of the Mid-America Brick and Structural Clay Products, Site #1, forfeited in 2013, began in August 2021. The landowner is completing the reclamation of the clay pit under a contract with Land Reclamation Program. The first part of the contract was to backfill and grade the pit area, which was completed in October 2021. The remaining part of the contract was to replace topsoil and get vegetation established sufficient enough to control erosion. On July 26, 2022, reclamation was evaluated and found to be successful, and the landowner was reimbursed for reclamation activities.

### **In-Stream Sand and Gravel Mining**

In-stream sand and gravel mining is one of the most prevalent types of mining in Missouri, as far as the number of sites. This type of mining method does not allow excavating machinery in the flowing portion of the stream. It is a bar skimming mining operation. Bar skimming is limited to the exposed portion of the gravel bar above the water line, between the ordinary high banks of a stream. Bar skimming is recommended as a means for advancing stream resource conservation while maintaining a viable extraction industry. This type of gravel removal operation lowers the risk of forward erosion of the stream channel upstream and sedimentation downstream. In addition, the practice of



Ray Johnson Inc, West Fork Black River.

removing gravel at periods of low-water flow will aid in protecting wildlife near the stream environment. Some of the rules include, staying an adequate distance from the stream bank, use of existing crossing areas, leaving an undisturbed buffer of 10 feet from the flowing water line, and no mining below the water line unless the operator has applied for and received a variance.

In 2023, the program permitted 200 in-stream sites. Numerous operators across the state excavate sand and gravel deposits, commonly known as gravel bars, as a source of aggregate material.

## Spotlight on the Ozarks: Sand and Gravel Mining

Sand and gravel mining operators in the Ozarks face challenges that operators in other regions of Missouri do not experience. The greatest regulatory challenge for sand and gravel operators is conducting mining and processing operations within the watershed of Outstanding National Resource Waters or Outstanding State Resource Waters. Outstanding resource waters are defined by the department's Water Protection Program as state or national waters:

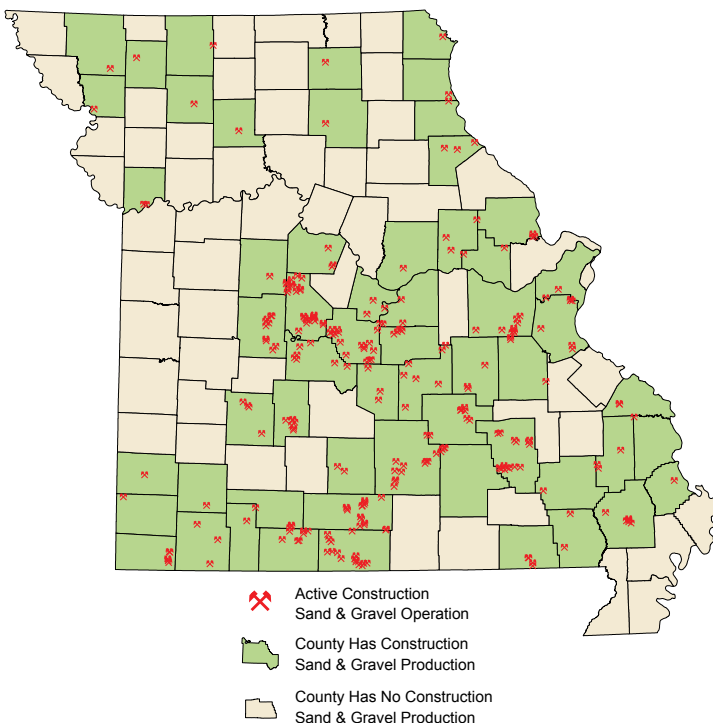
- Outstanding state resource waters are high-quality waters with a significant aesthetic, recreational or scientific value, specifically designated as such by the Clean Water Commission
- Outstanding national resource waters are waters that have outstanding national recreational and ecological significance. These waters shall receive

special protection against any degradation in quality. Congressionally designated rivers, including those in the Ozark National Scenic Riverways and the wild and scenic rivers system, are so designated. The three rivers that fall under this jurisdiction are Eleven Point, Jacks Fork, and Current.

The Ozarks counties of Phelps, Crawford, Dent, Shannon, Reynolds, Texas, Carter, Douglas, and Howell contain a majority of the either outstanding state or national resource waters. Some smaller designated areas are present in a few other counties in Missouri. In-stream sand and gravel operations are prohibited from those waters listed as Outstanding National Resource Waters. Clean water laws require mining operations in watersheds within National Outstanding Resource Waters to have a no discharge system. Discharges at sites in Outstanding State Resource Waters shall not cause the current water quality in the streams to be lowered. Due to this regulation, the Land Reclamation Program issues a letter to operators in these watersheds advising them of six extra conditions, along with a certificate to operate a surface mine. Five of the conditions are applicable to all other operators as part of their standard sand and gravel excavation plan. The one condition that is not required of all other operators is that the mined gravel bar is left nearly level at the end of the day. This is accomplished by back dragging any ledge or ridge created by the excavation. Most operators already do this and it does not present a financial burden to their operation. The mine site is not the only portion of the operation subject to the Water Protection Program's no discharge requirements.

A no discharge system also is required for washing and other processing areas along with all other types of businesses that operate in watersheds within an outstanding resource area. It is possible to operate a no discharge sand and gravel wash plant. Spring Creek Materials currently operates mine sites and wash plants in compliance with the no discharge requirements. Owner Travis Morrison reports the only other alternative is to have sand and gravel shipped in from more than 150 miles away from the Missouri River. Shipping doubles the price of that material for every 35 miles of travel. In this case, sand could cost up to \$85 per ton, which is not a viable option as it would be reflected in construction costs. Adequate supplies of sand and gravel exist to meet growth demands in the watersheds within the Outstanding State Resource Waters in the Ozarks, as this region is not experiencing the economic growth demands when compared to Branson, St. Louis, or Kansas City.

There are a number of websites that provide free aerial photographs, allowing operators to locate isolated gravel bars.



Sand and gravel production in Missouri.





The Doe Run Company West Fork Mine.

## Introduction and Purpose

The Metallic Minerals Waste Management Act, enacted into law in 1989, gives regulatory authority to the director of the department to have and exercise all powers provided in Sections 444.352 – 444.380, RSMo of this act. The Metallic Minerals Waste Management Act regulates disposal of waste from metallic minerals mining, beneficiation, and processing. Some of the staff director's duties are to secure appropriate staff, coordinate existing environmental programs, issue permits, conduct inspections, manage fees, maintain records of management practices, seek additional funds, publish rules, and pursue appropriate enforcement actions. The minerals covered by the Metallic Minerals Waste Management Act are those minerals or ores containing lead, iron, zinc, copper, gold, and silver. Operator applications contain, but are not limited to, a schedule and plan for closure and inspection-maintenance of the waste management area. Operators will implement the plan when the useful operating life of the waste management area is complete or when there is permanent cessation of the operation.

## Permitting

In 1991, the department issued 11 permits to operators under The Metallic Minerals Waste Management Act. During 2001 and 2002, the Land Reclamation Program continued the five-year review of the metallic minerals waste management permits.

Metallic Minerals Waste Management permit applications consist of financial assurance information and detailed waste management area closure and inspection-maintenance plans. The plans establish and explain the technical steps proposed to accomplish and maintain closure after mining and waste disposal is completed. Issues addressed in the plans include the following:

- The design and construction of waste control structures and tailings dams.
- The characterization of waste products.
- The methods for control and protection of surface water.
- The methods for protection of ground water and aquifers.
- The geology and seismicity of the area.
- The potential of subsidence.
- The reuse and off-site removal of wastes.
- The surface reclamation of waste management areas.

During the ongoing permit application review and five-year review of the closure and inspection-maintenance plans, Land Reclamation Program staff coordinate permitting with the other programs within the department involved with the metallic minerals waste management areas. They include Missouri Geological



Missouri Cobalt Inc, Madison Mine, Tailings Basin.

Survey's Geological Survey Program and Dam and Reservoir Safety Program as well as the Division of Environmental Quality's Air Pollution Control Program, Waste Management Program, and the Water Protection Program. This coordination process affords other program staff to review and comment on the technical aspects of the plans so that all the department's issues may be incorporated into the permit.

Pea Ridge Iron Ore Mine, permitted under Calder Holding LLC, is studying the tailings for recovery of magnetite and rare earth elements, with plans to start mining tailings out of the impoundment.

The Land Reclamation Program was involved with the department-wide inspection and surveillance activities performed at The Doe Run Company's Herculaneum smelter. In May 2001, the department, U.S. Environmental Protection Agency and The Doe Run Company signed a voluntary administrative order on consent. The order requires the company to conduct certain response actions to abate an imminent and substantial endangerment to the public health, welfare, and environment.

The Land Reclamation Program has been monitoring the construction of a containment berm around the perimeter of the current slag pile, which was required in the order. Construction of the berm has been underway since spring 2007. The Herculaneum smelter closed Dec. 31, 2013, and no longer produces slag.

The Land Reclamation Program is working with Missouri Cobalt through conference, conciliation, and persuasion to obtain a Metallic Minerals Waste Management Permit. This mine is located near Fredericktown and is mining the tailings left over from previous processing of copper, nickel, iron, zinc, and cobalt ore. Mining and processing of the tailings started in 2019.

There are plans to dewater and reopen the underground mine. A Metallic Minerals Waste Management Act permit was submitted to the department on April 13, 2021. Since the application submittal, the Land Reclamation Program coordinated with all applicable environmental regulators within the department and U.S. Environmental Protection Agency. This permit application, along with the closure and inspection/maintenance plans, are being finalized for the first new Metallic Minerals Waste Management Act permit to be issued by the department since 1991.

On Feb. 15, 2022, Missouri Cobalt became the newest metallic minerals waste management permitted facility, known as the Madison Mine.

## Inspections

Typically, inspections are performed semi-annually on the 11 metallic minerals waste management permit areas within Missouri. During these inspections, all aspects of each company's permits are evaluated. The main focus of these inspections is to assess the company's compliance with environmental laws administered by the department. The Land Reclamation Program is entrusted as the coordinating agency within the department for each active metallic mineral producer currently operating in Missouri. It is the program's responsibility to act as the liaison for the other programs within the department and each metal producer to ensure continuing compliance with all applicable state environmental laws.

Actual on-the-ground reclamation does not begin at these sites until mineral production ceases, and mine closure begins.

The Doe Run Company's Glover smelter has received approval from the department for closure of the Doe Run slag pile and the ASARCO Slag Pile. The closure and inspection/maintenance plans for these mines and smelters are either being reviewed by the department at this time or the department is waiting for the submission of revised closure plans for review and approval.

Asarco Inc. owned the facility from the 1960s until 1998 and began conducting investigation and cleanup of



contamination from past smelter operations pursuant to a Sept. 6, 1994, Consent Decree filed in Iron County Circuit Court. ASARCO was performing site-wide corrective action under the Consent Decree until 2004, when those activities ceased due to ASARCO's financial condition. Asarco filed for Chapter 11 bankruptcy in 2005.

A voluntary agreement (the Glover Site Project Trust Agreement) between the department and The Doe Run Company was executed Sept. 7, 2011. This agreement is designed to allow The Doe Run Company to utilize the funds recovered from the bankruptcy proceedings to perform work that would otherwise have been required of ASARCO under the 1994 Consent Decree. The summary judgment dated Nov. 11, 2013, ordered allocation of the bankruptcy claim to be disbursed to the Missouri Hazardous Waste Fund and to the Trustee of the Glover Site Project Trust. Funds deposited in the Missouri Hazardous Waste Fund are used to cover the department's ongoing oversight costs including document review and approval, site visits, and inspections. Funds from the Glover Site Project Trust are being used for the design, consolidation, and closure of the former ASARCO slag pile, development and implementation of the Phase I Remedy Investigation Work Plan, development and implementation of interim corrective measures, and a Corrective Measures Study. Ultimately, funds will be used for remedy implementation and long-term remedy operation, maintenance, and monitoring as part of the department's oversight.

Reclamation efforts at the Glover Facility represents years of efforts from the department, Attorney General's Office, and court proceedings. Jones Railroad Repair was awarded the contract to reclaim the Glover Slag Pile. Reclamation on the ASARCO Glover slag pile is now complete and blends in well with the surrounding hill sides.

## Enforcement

To date, four enforcement actions under the provisions of the MMWMA have been necessary by the Land Reclamation Program. Enforcement actions were at two smelters and two mines. These actions included violations for construction of a waste management control structure prior to department approval, the failure of two facilities to contain metallic mineral wastes within their approved waste management areas, and the failure of a now bankrupt facility to submit annual permit fees.

Enforcement is authorized by law only after attempts to eliminate the violation through conference, conciliation, and persuasion have been exercised and exhausted. In 2010 and 2011, the department and Attorney General's legal staff worked with The Doe Run Company in negotiation settlement concerning its Sweetwater Mine. These negotiations produced an enhanced environmental protection plan that goes above the requirements in The Metallic Minerals Waste Management Act.



Asarco Glover Slag Pile, reclaimed metallic minerals.



## Bonding

Pursuant to the Metallic Minerals Waste Management Act, Section 444.368, RSMo, before a permit can be issued, the operator shall file a demonstration of financial assurance in the form of a bond, certificate of deposit, company guarantee, escrow agreement, or other form of financial assurance as approved by the staff director. Any financial assurance instrument shall be in such form as the director prescribes, to the benefit of the State of Missouri, conditioned that the operator shall faithfully perform all terms of the permit and the requirements of Sections 444.352 to 444.380, RSMo. Upon completion of the terms of the permit and closure and inspection-maintenance requirements in Sections 444.352 to 444.380, RSMo, the financial assurance instrument may then be released from the benefit of the State of Missouri, back to the operator.

The financial assurance instrument shall be signed by the operator and shall be in the penal sum of \$1,000 for each acre or fraction of an acre of the metallic minerals waste management area, but not less than \$20,000 for each permit. No financial assurance instrument shall be canceled or terminated by the operator except after no less than 90 days' notice and substitution by some other financial assurance approved by the staff director.

In the event a company guarantee is furnished, it shall be in the form of a letter, duly executed by an officer of the company, guaranteeing the required amount of financial assurance, accompanied by a financial test statement demonstrating ownership of real property or mining rights in Missouri of an assessed valuation of at least three times the amount of required financial assurance.







## FROM THE ARCHIVES MINING PHOTOS FROM THE PAST



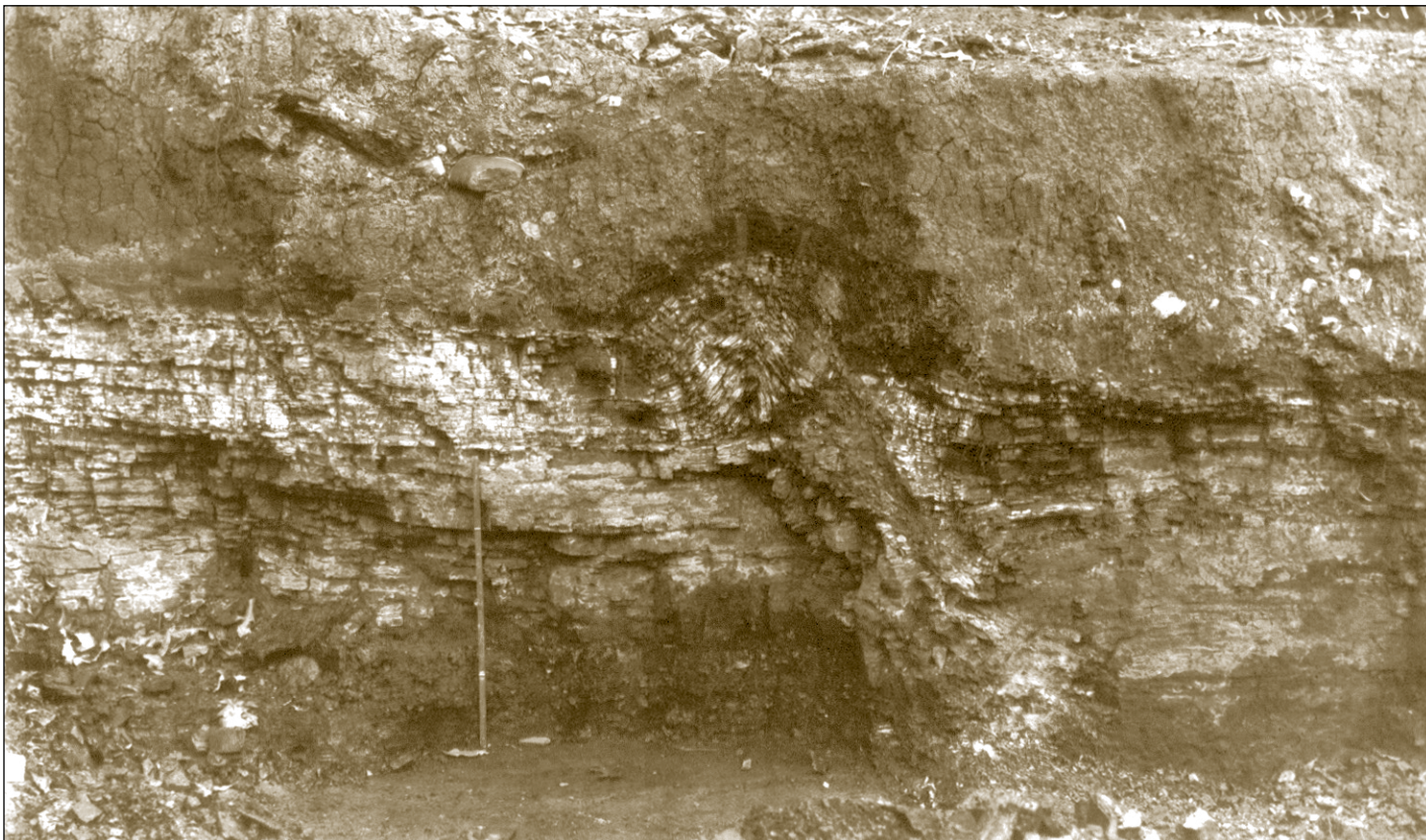
Coal mine of Fishborne and Link near Macon City.

Stripping in Mulberry Coal Mine, 1 mile west of Hume in Bates County, 1915.



Strip pit of Perry-McMahon Coal Co. in the Panama region, Vernon County in 1915.





Folding or faulting in a coal mine, seam north of Knobnoster in Johnson County.



Schnebelin coal bank in Vernon County. Taken in 1915.





Coal mine north of Knobnoster, circa 1890.



O'Meara's Quarry in St. Louis.

# INFORMATION ON THE INTERNET

## Missouri Department of Natural Resources

- Department Home Page ..... [dnr.mo.gov](http://dnr.mo.gov)
- Missouri Geological Survey Home Page..... [dnr.mo.gov/land-geology](http://dnr.mo.gov/land-geology)
- Land Reclamation Program ..... [dnr.mo.gov/land-geology/mining-land-reclamation](http://dnr.mo.gov/land-geology/mining-land-reclamation)
- Land Reclamation Program Forms ..... [dnr.mo.gov/land-geology/businesses-landowners-permittees/permits](http://dnr.mo.gov/land-geology/businesses-landowners-permittees/permits)
- The Complete Missouri Mining Law ..... [revisor.mo.gov/main/OneSection.aspx?section=444.520](http://revisor.mo.gov/main/OneSection.aspx?section=444.520)
- of State Regulations (see Division 40) ..... [sos.mo.gov/adrules/csr/current/10csr/10csr](http://sos.mo.gov/adrules/csr/current/10csr/10csr)

## U.S. Department of the Interior, Office of Surface Mining

- Office of Surface Mining, Washington D.C. .... [osmre.gov](http://osmre.gov)
- Office of Surface Mining, Mid-Continent  
Regional Coordinating Center, Alton, Ill. .... [mcrcc.osmre.gov](http://mcrcc.osmre.gov)

## Other Mining and Reclamation Organizations

- National Association of Abandoned Mine Land Programs ..... [naamlp.net](http://naamlp.net)
- Interstate Mining Compact Commission ..... [imcc.isa.us](http://imcc.isa.us)
- National Association of State Land Reclamationists ..... [naslr.org](http://naslr.org)
- Missouri Limestone Producers Association ..... [molimestone.com](http://molimestone.com)
- The Mining Industry Council of Missouri ..... [momic.com](http://momic.com)



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[dnr.mo.gov/land-geology/mining-land-reclamation](http://dnr.mo.gov/land-geology/mining-land-reclamation)